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AN

INAUGURAL

DISSERTATION

ON THE

EFFECTS OF CONTAGION UPON THE HUMAN BODY.

BEING AN ATTEMPT TO ASCERTAIN ITS MODE OF OPERATION, WITH A FEW OBSERVATIONS ON THE PROPER METHOD OF PREVENTING AND CURING FEBRILE CONTAGIOUS DISEASES.

SUBMITTED TO THE EXAMINATION OF THE

Rev. John Ewing, S. T. P. Provoſt,

THE MEDICAL PROFESSORS AND TRUSTEES

OF THE

UNIVERSITY OF PENNSYLVANIA,

FOR THE DEGREE OF DOCTOR OF MEDICINE,

ON THE 19th DAY OF MAY 1794.

By Lewis Condict, of New-Jerſey,

MEMBER OF THE AMERICAN MEDICAL SOCIETY AT PHILADELPHIA.

"NEC POST RATIONEM MEDICINAM ESSE INVENTAM, SED POST INVENTAM MEDICINAM RATIONEM ESSE QUÆSITAM."

CELSUS.

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M^r Drysdale with the
respectful compliments
of his friend
& fellow graduate
The Author

DEDICATION,

TO

WILLIAM SHIPPEN, JUNIOR, M. D.
PROFESSOR OF ANATOMY, SURGERY AND WIDWIFERY,

CASPAR WISTAR, M. D.
ADJUNCT PROFESSOR OF ANATOMY, SURGERY AND MIDWIFERY;

BENJAMIN RUSH, M. D.
PROFESSOR OF THE INSTITUTES AND CLINICAL MEDICINE.

ADAM KUHN, M. D.
PROFESSOR OF THE THEORY AND PRACTICE OF MEDICINE,

SAMUEL P. GRIFFITTS, M. D.
PROFESSOR OF THE MATERIA MEDICA.

GENTLEMEN,

PLEASE to accept the following DISSERTATION, as a small mark of gratitude for the many useful lessons I have received from your Lectures, and as a pledge of the sincerity of my friendship and esteem for you.

That you may long continue the ornaments of the healing art, in the University of Pennsylvania, which has so deservedly, by your exertions, arrived at a high pitch of eminence, and be useful to mankind, is the sincere prayer of

WORTHY SIRS,

YOUR OBLIGED HUMELE SERVANT,

The AUTHOR.

PREFACE.

IT is hoped the benevolent reader will excuſe the rough, unpoliſhed garb, in which the ideas intended to be conveyed in this diſſertation, are cloaked. The ſhortneſs of time allowed for its preparation, would not admit a reviſion, and the author was obliged to commit it to the preſs in the ſame form in which it was firſt penned.—However the doctrine which is endeavoured to be eſtabliſhed, may differ from many medical oracles, and from the opinion of many reputable practitioners; ſtill it is no more than what appears to be a fair and rational concluſion drawn from undoubted facts.

The author cannot but regret that ſome particular circumſtances prevent the appearance in this diſſertation of ſome facts and obſervations upon the late epidemic of this city. Theſe are what he principally relied on for the full proof of the doctrine. However they will ſhortly appear from a much better authority, and well authenticated; and if conſidered with candour, will I think ſufficiently prove the contagion of that diſeaſe to be what is here aſſerted.

A DISSERTATION, &c.

THE human frame, in consequence of its delicacy of structure, complexity of machinery, and exposure to various noxious powers, is subject to disease in all its varieties of shape, which are daily cutting down thousands of our fellow mortals in the very morning of life.

It is much to be regretted that no more of these ravagers are within the reach of the healing art, which must ever be considered imperfect, as long as there are any avenues to the grave, except that of old age.

Of all the diseases which afflict mankind, none are so destructive, as those which are called *febrile contagious diseases*. Of the truth of this assertion, the Small Pox, Plague, Yellow Fever (which lately proved fatal to so many citizens of Philadelphia) and some others, which are unnecessary to be enumerated, are melancholy proofs.

The manner in which Contagion operates upon the body, to produce its deadly effects, has long been a bone of contention among physicians. After such frequent occurrences of them, we might expect that they would agree in

ſentiment, both, in its mode of operation, prevention and cure: but we ſeldom meet with two practitioners, who are of the ſame opinion in either reſpect. This is conſidered as an evidence, that truth yet lies concealed behind the curtain, and has given origin to the proverb, "Ars medica conjecturalis eſt." But from the improvements and diſcoveries which are daily making, in the different departments of medicine, we cannot but hope that we ſhall one day arrive at certainty in them all, and that Cancer and Pulmonary Conſumption will ceaſe to be the *opprobria medicorum*.

I ſhall not, in this paper, attempt to conſider the origin of Contagion; whether it be the product of animal, or vegetable putrefaction; but leave the diſcuſſion of theſe ſubjects to abler pens, and ſhall confine myſelf principally to the conſideration of its effects when applied to the human body. Were we well acquainted with its preciſe mode of operation, it would aſſiſt us greatly in determining the moſt proper method of prevention and cure. I am conſcious of my inability to do juſtice to ſo important a ſubject, more particularly in ſo ſhort a ſpace of time, and within ſo narrow a compaſs, as circumſtances at preſent will admit of.

If the matter of contagion was a ſubſtance which we could analyſe chemically, and diſcover its conſtituent parts, analogy would, no doubt aſſiſt us greatly in determining its mode of operation; but as it is not evident to our ſenſes, we can judge of it only by its effects.

Different have been the opinions of phyſicians reſpecting the ſeat of contagious diſeaſes: Boerhaave and his followers, ſuppoſed the blood to be the ſeat of all febrile diſeaſes; and that the matter of contagion, induced an acrimony or morbific matter, which circulating in the veſſels was the proxi-

mate cauſe of the diſeaſe. In ſupport of this hypotheſis it was obſerved,

1ſt. That moſt febrile diſeaſes which terminated favourably, ended by ſome critical diſcharge of morbific matter, by ſome of the emunctories, or it was depoſited in an abſceſs in ſome part of the body.

A ſecond argument in favour of the blood being the ſeat of the diſeaſe was taken from the putrefactive ſtate of it, which they thought ſufficiently proved by the fœtid ſmell of the patient, and diſſolved ſtate of the blood, as appeared when effuſed.

A third, was the frequent occurrence of hemorrhagies, which they imputed to the diſſolved ſtate of the blood.

The firſt of theſe arguments is very ably refuted by Doctor Ruſh in his Lectures on Fevers. He obſerves in the firſt place, that fevers are often induced by frights, and are cured by bark, electricity, paſſions of the mind, &c. the former of which can have no effect in generating, nor the latter in evacuating a morbific matter.

In the next place he remarks, that no preternatural acrimony is obſerved in the urine or perſpiration, which are ſuppoſed critical evacuations; and fevers often terminate without any ſuch diſcharges whatever. As to abſceſſes, they as often follow other diſeaſes as fevers, and when they do occur, are the conſequences of partial determinations and weak action of the veſſels of the part affected.

With reſpect to the ſecond argument, the putrefactive ſtate of the fluids; it has been ſo ably combated by Doctor Seybert in an inaugural diſſertation publiſhed laſt ſpring, that I ſhall not enter upon the conſideration of it, but refer

to the above publication. He has ſhewn a putrefaction of the fluids to be ſo incompatible with life, and ſo contrary to actual experiment, as not to leave the leaſt doubt in my own mind upon the ſubject. It is true, the blood is often found diſſolved after being effuſed; but I cannot but think with Doctor Seybert, that it took place after it had been diſcharged from the arteries, and that the putrid ſtench was owing to the ſame cauſe.

A third argument is the frequent occurrence of hemorrhagies, which they impute to a diſſolved ſtate of the blood. But what can be more abſurd than to ſay that the rupture of a veſſel is the conſequence of a particular condition of the contained fluid? unleſs we ſuppoſe it capable of deſtroying, or eating away the veſſel, which I think no one will aſſert. If the blood eſcapes, the fault is certainly in the veſſel, and not in the blood, any more than a piece of money, for falling through the miſer's purſe which is worn out in the ſervice.

The violence of the hemorrhage will in a great meaſure be proportioned to the impetus of the blood; but this by no means depends on its diſſolution, but upon the force with which the arteries contract upon their contents and propel them forward.

At preſent, the humoural pathology, ſeems almoſt entirely exploded from the medical ſchools.

The celebrated Cullen, was one of the firſt ſyſtematic writers, who taught us not to look for the ſeat of febrile diſeaſes in the fluids. The ſubſtance of the doctrine which he ſubſtituted, is the following.

He ſuppoſes the matter of contagion, when taken into the body, has a peculiar *ſedative* effect upon the brain and

nervous ſyſtem, deſtroying their mobility and *directly* weakening their energy; and that through the medium, and by the connection of the nerves, with every part of the body, the whole partakes of this debility, but more particularly the ſanguiferous ſyſtem; and that in conſequence of the weak action of the heart and large arteries, the extreme parts are not furniſhed with their uſual ſupply of blood, which gives riſe to the cold ſtage of fever, and by the intervention of the Vis Medicatrix Naturae, a ſpaſm is formed upon the extreme veſſels, which proves an indirect ſtimulus to the heart and large arteries, exciting them into violent action, to overcome the debility and ſpaſm induced.

This doctrine, although very plauſible at firſt view, yet upon a more minute inveſtigation and ſcrutiny, I think it will be found, that the firſt principles upon which it is founded, are erroneous.

Much altercation and diſpute has ariſen in the medical ſchools, reſpecting the term *ſedative*. By it as uſed by Doctor Cullen, we are to underſtand, a power whoſe firſt, and immediate operation is *directly* debilitating. But in this ſenſe of the word, it ſeems liable to many exceptions.

If the doctrine of animal life which is now taught in this Univerſity (viz: that it is a forced ſtate, depending on the operation of ſtimuli) be true; and if the ordinary ſtimuli which ſupport life, are conſtantly acting, the uſual degree of healthy excitement will be kept up: and unleſs we ſuppoſe the contagion capable of intercepting, or otherwiſe preventing the application of them; it will be difficult to conceive how it can by a *directly ſedative* operation, ſo debilitate the ſyſtem, as to produce the phenomena of a contagious fever.

The exiſtence of ſuch a power, has never yet been proved. There are a few ſubſtances, as Nitre, and Digitalis which are commonly ſaid to poſſeſs ſedative virtues, as they diminiſh both the force and frequency of the pulſe. But if they are called ſedatives, I believe it is more out of complaiſance to cuſtom, than any directly debilitating qualities they are poſſeſſed of. The diminiſhed action which follows their uſe, may perhaps be owing to abſtinance from food, which is occaſioned by the diſeaſe they are uſed for. Theſe medicines likewiſe encreaſe the evacuations, particularly of urine and ſweat; and it is well known that diminiſhed action follows depletion.

In order to avoid all ambiguity, Phyſicians ſhould accurately define the meaning of their terms; if for inſtance when they ſpeak of the ſedative effects of wine, or ardent ſpirits, they mean that ſtate of indirect debility which follows the taking an immoderate doſe of them, there would be no impropriety in uſing it; but as the term, ſedative, is commonly underſtood, viz: a *directly* debilitating power, I believe we are as yet unacquainted with any power which poſſeſſes ſuch virtues.

If we compare the operation of ſuch powers as are commonly called *directly* debilitating or *ſedative*, as cold, fear, evacuations, abſtinence, &c. * with that of contagion, we find their effects very different. Perſons who have been expoſed to them ſo long as to die of them, have never ſhewn any ſymptoms of a contagious fever. A long continued application of cold, and moiſture, have been ſaid to have produced the Scurvy, but never a contagious fever, as I have heard or read of. On the contrary moſt conta-

* Although theſe are commonly called ſedatives, yet in reality they are nothing more than the abſtraction or abſence, of the natural ſtimuli of heat, food, and the ſtimulus of diſtention from blood and chyle in their proper veſſels.

gious diſeaſes ſeem to be the offspring of heat, and generally diſappear upon the approach of winter's cold*. The Plague it is true has raged in cold weather, but it does alſo in warm.

If the matter of contagion was of a directly debilitating or ſedative nature, we might expect that thoſe perſons, who had previouſly ſuffered by cold, hunger, or evacuations, or in other words, thoſe, who were already labouring under direct debility, would be more eaſily affected than others, by contagion, during the reign of an epidemic. For a certain degree of debility being already induced, a ſlight degree of force in the contagion, would ſoon produce that ſtate, which conſtitutes the actual diſeaſe. But this we find is not the caſe. Moſely, ſpeaking of the Yellow Fever, ſays, "Subjects moſt likely to be attacked by it, are the "florid, the groſs, the plethoric;—that ſort of ſtrong, full, "youthful people, with tenſe fibres, who, in England, are "ſaid to reſemble the picture of health. In ſhort, to are "all people, who are of an inflammatory diatheſis, and do "not perſpire freely†." His obſervation is confirmed by Dr. Ruſh. He ſays in his lectures, that, while it was prevalent in this city, it moſt frequently attacked the robuſt and healthy citizens, and was moſt violent among them, few recovering; whilſt thoſe who lived ſparingly, and uſed gentle evacuations, frequently eſcaped the diſeaſe, and in thoſe who were attacked by it, the ſymptoms were much milder, and they had a quicker recovery.——The ſame author above quoted (Moſely) ſpeaking of a putrid bilious fever, which affected the army in Jamaica, ſays, "Some of "the groſs and plethoric, died ſoon after being attacked, in "convulſions."

* The Small Pox and Meaſles are an exception.

† Vide. Moſely on tropical diſeaſes, page 415.

As perſons moſt likely to be affected by contagious diſeaſes, are ſuch as above deſcribed, if the exciting cauſe was directly debilitating, it would certainly counteract the prediſpoſition; for, as they are already excited ſomething above the healthy point, the contagion would reduce the exceſſive excitement, and an approach towards health would be the conſequence.

We find the method of treatment in the laſt ſtage of a contagious fever, quite different from that of a perſon debilitated by cold, hunger, or any other like cauſes. In the former we make uſe of the moſt powerful ſtimuli in the ſhops, as ether, wine, vol. alkali, bark, opium, &c. but to a man nearly famiſhed with hunger, or periſhed by cold, this treatment would be certain death. We begin in theſe caſes with the moſt moderate ſtimuli in ſmall doſes, and increaſe gradually, until, by degrees, we have worn down the morbid excitability, and reſtored the loſt excitement.—The treatment differs ſtill more, in the firſt ſtage of theſe contagious fevers; for the moſt ſucceſsful way of curing them, has been found to be by evacuations.

If then we find no ſimilarity between the operation of ſuch powers, as are commonly called ſedative, and that of the contagion, which produces the Plague, Yellow Fever and others; and that the former, inſtead of aſſiſting the latter, ſeems rather unfavourable to its operation, whilſt it is rendered more active by heat, full living, &c. and if, inſtead of being cured by the ſame means, an oppoſite ſet of remedies are found moſt uſeful, we may, I think, ſafely conclude, that the matter of contagion is not a ſedative or directly debilitating power.

As moſt contagious fevers begin with great violence, producing the moſt alarming ſymptoms, and oftentimes death, in a very ſhort time, from the firſt onſet, we may conclude

that the ~~cause~~ cause, whatever it may be, is a powerful one. Phyſicians are ſeldom or never called upon to viſit a patient, till ſome time after the attack of the diſeaſe, and hence the firſt effects of contagion, generally eſcape our notice. We have no certain rule, by which we can judge, when the ſyſtem is ſaturated, (if I may uſe the expreſſion) with the contagion. Many perſons have been very much expoſed to it, and have eſcaped unhurt; while others, who have not undergone half the expoſure, have fallen victims to its fury.——A certain ſtate or condition of the body, is no doubt neceſſary, to render it more ſuſceptible of the operation of the contagion. But authors are by no means agreed what this ſtate is. A certain length of time is likewiſe requiſite, after the introduction of contagion into the body, to produce its effects. This varies in different diſeaſes, and in different perſons labouring under the ſame diſeaſe. This is moſt probably owing to the varieties of conſtitutions, ſome being abler than others to reſiſt its effects, and likewiſe to the different degrees of virulence in the contagion.

The moſt common precurſors of contagious diſeaſes, are muſcular debility, laſſitude, giddineſs in the head, pains of the back and loins, head-ach, loſs of appetite, &c: Theſe continue for a longer or ſhorter time, and the diſeaſe is uſhered in by a cold fit, which is ſoon followed by a hot one, with all the uſual ſymptoms of fever, which are more or leſs ſevere, according to the violence of the cauſe, and ſuſceptibility of the patient to be acted upon.

Theſe ſymptoms very much reſemble thoſe which are the conſequences of a fit of intoxication, after the firſt or ſtimulant effects of the ardent ſpirits have gone off and left the patient in a ſtate of indirect debility. Inſtances of this kind are very common, and I dare ſay have frequently been obſerved by phyſicians. I will here relate one, which came

within my own obſervation. Some time in the month of September laſt, a wood-chopper was ſo intoxicated, that he lay all night expoſed to the fall of a heavy dew, without any covering but the canopy of heaven. The next day he complained much of head-ach, ſickneſs at ſtomach, pains in his back and loins, laſſitude, and debility. At noon he was ſeized with chilline ſs and ſhivering, which were ſucceeded by a burning fever, ſuffuſion of the face and eyes, moſt excruciating pain in his head and epigaſtric region, which was very ſore and painful to the touch. Twelve oz: of blood were taken from him, and one oz. of Glauber's ſalt given, by which means he got conſiderable relief. The ſymptoms recurring next day, but with leſs violence, the blood letting was repeated, and by a low vegetable diet, cool air and watery drinks, he, in a few days, recovered ſo far as to be able to go about his buſineſs. Had this caſe occurred in a place where the Yellow Fever was epidemic, it would no doubt have paſſed currently enough for that diſeaſe, as it had almoſt every diagnoſtic ſymptom of it, except the yellowneſs of the ſkin, which I am told was not preſent in every caſe. If we find that the ſame effects are induced by an immoderate doſe of ardent ſpirits, as by the contagion of the Yellow Fever, and that both are cured by the ſame means; the rules of philoſophiſing which direct us to attribute ſimilar effects to ſimilar cauſes, would teach us to infer that the mode of operation in both is ſimilar, viz: *ſtimulant*.

Let us now take a ſhort view of ſome of the moſt common febrile contagious diſeaſes, and ſee if the ſame may not be inferred from the method of treatment, which has proved moſt ſucceſsful in them.

Sydenham, ſpeaking of the Plague which viſited London in the year 1665, ſays, that Pleuriſies, Quinſies, and other inflammatory diſeaſes were epidemic, and he never ſaw

them more frequent than they were a few weeks before the Plague made its appearance. This was what firſt induced him to uſe the Lancet for the cure of this dreadful diſeaſe, which he found to be the only remedy capable of reſiſting its force. The blood which was drawn, reſembled that of a patient labouring under a Pleuriſy, or Rheumatiſm. He relates the ſtory of a ſurgeon in the army, who applied to the Governor for liberty to relieve his fellow ſoldiers, who were afflicted with it; which being obtained, he took away ſo large a quantity of blood, that the men were ready to faint. The conſequence of this mode of treatment was, that not one of them died, although bleeding was the only remedy uſed*.

Purging and ſweating are likewiſe mentioned by Dr. Sydenham, as remedies for the Plague: the latter he adviſes to be kept up for 24 hours, by which means a large quantity of fluids is drawn off, and the patient as certainly reduced, as by the more immediate way of blood letting. In ſome inſtances the Plague is ſaid to begin with ſuch highly putrid ſymptoms that any evacuations are found to increaſe all the bad ſymptoms, and hurry on the diſſolution of the patient; and that a very oppoſite ſet of remedies, are the only ones capable of giving any relief. But this will not militate in the leaſt againſt the doctrine, if it be well examined. It is probable the contagion in theſe inſtances is ſo highly concentrated, and the condition of the patient ſo favourable to its operation, that the firſt or inflammatory ſtage, of the diſeaſe, terminated very ſhortly in gangrene, and mortification of ſome of the viſcera. It is a law of the ſyſtem, that the more violent the attack, the ſooner will nature yield to the conflict, and terminate the diſeaſe. No more happens here, than what we daily obſerve in a common phlegmon, the more violent the in-

* Vide, Wallis's Sydenham on the Peſtilential Fever of 1665

flammation, the more apt are they to terminate in gangrene and mortification; and when this has once taken place, the mode of treatment is very different from what it was during the inflammatory ſtage. It is however evident enough that if blood letting and other remedies, which are proper to reſtrain or moderate inflammation, had been timely uſed, theſe conſequences might have been prevented.

If, in one inſtance, the Plague begins with exceſſive action in the arterial ſyſtem, and all the ſymptoms of an acute inflammatory diſeaſe, and affects another perſon with a languid, weak pulſe, dejected and pallid countenance, coma, and all the attendants upon a Typhus gravior; ſhall we ſay that the cauſe which produced them was different? By no means; they are nothing more than different ſtages of the ſame diſeaſe, ſucceeding each other ſooner or later, according to the violence of the exciting cauſe, the conſtitution of the patient, and method of treatment purſued.

All Phyſicians of the preſent age ſeem to agree, that the contagion of the ſmall pox is of a highly ſtimulant nature, at leaſt in their practice they do; for they find, that thoſe perſons generally have the diſeaſe moſt favourably, who abſtain from animal food, and ſpirituous liquors, and live upon a low vegetable or milk diet and watery drinks, who avoid heat, immoderate exerciſe, &c. Yet ſuch is the inflammatory tendency of the diſeaſe, that in ſome inſtances, notwithſtanding all the above precautions have been uſed, it is found neceſſary to uſe blood-letting and purging, to prevent the indirect debility which would otherwiſe have followed.

In one inſtance the contagion of this diſeaſe will produce puſtules of a mild diſtinct kind, with but ſlight inflammatory ſymptoms, and terminate in the moſt favourable manner,

but in another patient, the puſtules will be of the confluent ſpecies, the inflammatory ſtage will be violent, and of ſhort duration, quickly diſappearing, and will be ſucceeded by highly putrid ſymptoms, which will ſoon uſher in death.

How often do we obſerve a Typhus fever to follow a Peripneumony, where the inflammation was violent, and blood ſparingly drawn? I have frequently liſtened to hear people tell how narrowly they have eſcaped from death. "I was firſt taken with the Pleuriſy, then with a Nervous fever, which was followed by a Putrid fever." It is probable that the whole catalogue was the conſequence of injudicious treatment in the Pleuriſy, where the Phyſician has been too timid in bleeding, or has had to do with a timid patient and relatives (which is often the caſe) who think they know as much as the Phyſician, and take upon themſelves to ſay "Doctor, you have taken blood enough."

The Scarlatina often appears with ſuch inflammatory ſymptoms as to indicate bleeding and purging, which is then practiſed with advantage; but when it has been ſuffered to run on for ſome time without any attempt to mitigate its violence and a Typhus ſucceeds, all preternatural evacuations are then highly improper, and a different ſet of remedies become neceſſary. In ſome inſtances it begins with a ſevere inflammation of the fauces, which terminates very ſhortly in gangrene and mortification of the parts. Authors forbid evacuations here, but analogy would induce us to ſuppoſe, that if they were timely employed, they would greatly mitigate its violence. Doctor Ruſh informs us in his lectures that when one child in a family has been ſeized with it, he has prevented the reſt from taking it, by giving each a cathartic*.

* Phyſicians differ in ſentiment reſpecting the Scarlatina and Cynanche Maligna. Some aſſert that they are two diſtinct diſeaſes, while others ſay that they are only different degrees of the ſame diſeaſe.

The Influenza I believe appears universally with inflammatory symptoms, and is relieved by depletion. The same may be said of the measles.

The Dysentery frequently appears with such inflammatory symptoms as to indicate bleeding, which has been practised with great advantage, as we are told by authors who have written on the disease.

The experience of all ages has shewn that the contagion of the Yellow-Fever, acts as a powerful stimulus, inducing violent inflammatory action of the arterial system; and we have the authorities of Lind, Mosely, Jackson and others to assert that bleeding and purging are the only remedies to be depended on for the cure of it in its first stage: the experiance of the Physicians of Philadelphia, during its reign in this city, would alone be sufficient to establish their superior efficacy. Dissections of patients who have died both of this and the preceding disease, have abundantly shewn their inflammatory tendency.

It is worth noticing a remark, which I have heard made by Physicians who were most conversant in this disease, during its reign in this city; which is, that it was particularly fatal to those females, whom it attacked *during their pregnancy;* but very few of them recovering who were seized with it: and that in almost every instance it produced *abortion* or *miscarriage* just before death.——What is this to be imputed to? Is it on account of that particular *irritable state* of *body*, which so universally attends the sex during their pregnant state, rendering them more susceptible of impressions? Or is it owing to the *stimulant nature* of the *Contagion* of the Yellow fever, being superadded to that of the *fœtus* in *utero*, and by their conjoint operation sooner producing *indirect debility?* Analogy would induce us to suppose the latter the most probable supposition; as we have alrea-

dy obſerved, that perſons of a full plethoric habit of body, were more likely than others, to have the diſeaſe violently.

From a retroſpect of what has been ſaid upon the analogy between the effects of contagion, and the ſtimulant properties of wine, ardent ſpirits, &c. and the ſimilarity of treatment in diſeaſes which are acknowledged inflammatory with that which has proved moſt ſucceſsful in the firſt ſtage of contagious febrile diſeaſes, I think the following concluſions may be fairly drawn.

That the matter of contagion whatever it may conſiſt of, is of a highly ſtimulant nature, which, when applied to the human body, operates upon the excitability in the ſame manner as all other ſtimuli do, by encreaſing the excitement to an unuſual degree, but more particularly of the ſanguiferous ſyſtem. But as all violent and preternatural efforts muſt at length be followed, by a ſtate of relaxation or inactivity proportional to the violence of the preceding action, this ſtate of atony or indirect debility, is induced ſooner or later, according to the virulence of the contagion, the habit of body, and conſtitution of the perſon affected.

Perhaps it may be urged as an objection to this doctrine, that ſome contagious diſeaſes as the Plague for inſtance; attack ſo ſuddenly after expoſure to the contagion, and with ſymptoms ſo different from thoſe of any ſtimulus which we are acquainted with; that its operation cannot be ſtimulant. The patient is ſuddenly ſeized with great proſtration of ſtrength, ſickneſs, vomiting, vertigo, &c.—— But let a perſon who never has been accuſtomed to the uſe of tobacco, (which no body denies to be a ſtimulus) undertake to ſmoke a ſegar, or chew a large quid of it, and he will be almoſt inſtantaneouſly ſeized with the ſame ſymptoms above deſcribed; but if he ſhould ſmoke not more than one third of it, or take no more than perhaps half the

quantity into his mouth, the effects will not be any thing like so violent. The same in all probability is the case with the Plague: if the contagion be highly concentrated, or abundant in quantity, its effects will be more violent and sudden.

Perhaps it may be asked, why does the contagion of the small pox always produce the same disease, in preference to the measles, yellow fever, or any other contagious disease, since all contagions are stimulant, and operate in the same manner upon the body? To this I answer, that the same cause which occasions an acorn to produce an oak, rather than a bramble or a thorn-bush; influences the variolous matter to produce the small pox, in preference to any other disease.

I shall not attempt to assign any reason why the increased action of the arterial system which occurs in febrile contagions diseases, follows debility, but shall refer it to a law of the animal economy; and shall content myself with having endeavoured to prove that this debility is not of the *direct* but *indirect* kind; as it leads to a very different method of treatment from what is commonly pursued in diseases of *direct* debility, and which I am persuaded, might be used more frequently in febrile diseases than is commonly practised in this country at present, provided it be used in proper season.

The remedies in common use among Physicians, for the cure of low continued fevers, (although they often commence their attack with symptoms of too much action in the arterial system) are, generally speaking, Tonics and Stimulants. When called early in the disease, an Emetic or Cathartic is generally ordered, to cleanse the first passages; but some neglect even this precaution, and from the very onset of the disease, prescribe Bark, Wine, Vol. Alkali,

Ether, Opium, &c.———This was the method purſued in the late Epidemic of this city, when it firſt made its appearance, and a dreadful mortality was the conſequence: but a very few of them recovering. But when theſe were laid aſide, and blood-letting and purging ſubſtituted in their ſtead, the effects were very different; a much ſmaller number dying, in proportion to thoſe who were ſeized with it.

Doctor Moſely in his treatiſe on tropical diſeaſes, gives an account of a Putrid bilious fever, which ſeized the army in Jamaica, and was attended with the following ſymptoms. Sudden loſs of ſtrength, nauſea, clamlineſs in the mouth and fauces; the eyes were dull, tinged with bile, and ſunk in the head, pulſe low and quick, ſkin moiſt, abdomen tenſe, great anxiety, yellowneſs of the ſkin, coma, cold ſweats, hiccup, &c. and ended in death on the ſecond or third day. This diſeaſe he tells us was at firſt treated with bark, and cordial medicines, and every man, moſt invariably died of it who was taken. Upon reflecting on its fatality, and where the error of treatment lay, he ſuſpected it to ariſe from the dread of evacuations in the beginning, on account of inducing debility. Accordingly, purging was adviſed at the onſet, and to be continued, until it was contraindicated by weakneſs. "But," ſays he, "ſo far was the re-"ſult of the apprehenſion from being confirmed by the "event, that it was found that the men acquired ſtrength "in proportion as they were diluted and purged." The evacuation by ſtool was carried to a great length. "Many patients" continues he, "had twenty ſtools a day, for three days ſucceſſively." The conſequence of this treatment was, that not a ſingle patient died, who followed it.

The method of treatment in diſeaſes of indirect debility as adviſed by a late celebrated author, is certainly neither founded upon reaſon, nor the ſucceſs of the practice. In

violent diſeaſes as the Plague, Yellow fever, &c. where the ſyſtem is ſuddenly ſo overpowered with ſtimuli, as to ſink as it were, beneath the weight; the method recommended by him, is to throw in the diffuſive ſtimuli in large and repeated doſes, and thus endeavour to overcome force, by force; but as all violent efforts muſt be ſucceeded by a ſtate of relaxation, proportional to the preceding action; the excitability will at length be exhauſted, and the excitement when it falls, falls like Lucifer, "never to riſe again."

It has been frequently obſerved in Peripneumony, that the ſyſtem has been ſo overloaded, that the pulſe was ſcarcely perceptible; but upon blood being plentifully drawn, it has immediately become fuller and ſtronger. This was very frequently the caſe in the late Epidemic of this city; the pulſe has become more active even after the ſecond and third bleeding.

If we attempt to take the cure of theſe diſeaſes out of the hands of nature, we muſt do it altogether, and leave nothing to her care. I have frequently been informed, and by good authorities, that many patients in the Yellow fever, after the firſt bleeding, found all their bad ſymptoms, particularly the pains of the head, and epigaſtric region, greatly aggravated, and the pulſe became much fuller and more active. This was ſometimes the caſe after the ſecond bleeding; and the patient was ſo ſenſible of its bad effects, that he refuſed to ſubmit to its repetition and died in conſequence; whilſt others who had it performed a third time, found all their pains mitigated, and they had a ſpeedy recovery. The reaſon of theſe phenomena is obvious: the contagion was ſo highly concentrated and ſo abundant, as immediately to overwhelm the powers of life; but a part of the burthen being removed, the remainder is more proportional to the excitability of the patient, and the arterial ſyſtem is excited into violent action, whereby a larger

quantity of blood than usual is determined to the head and abdominal viscera, which encreases the inflammation, and consequently the pain of these parts.

Perhaps it may appear strange at first sight, to advise evacuations for the prevention and cure of contagious febrile diseases, particularly to such as have been accustomed to see a contrary method pursued; but if so many instances can be adduced from such respectable authorities to prove its superior efficacy, it is certainly entitled to a further trial. It is only in the first stage of these diseases, that this treatment will be of service. In the last stage, the only remedies which will be found of any advantage, are Tonics and Stimulants.

What can be more rational than this method of treatment in the first stage, provided the doctrine which we have endeavored to establish be just? As the patient is already sinking under accumulated load of *preternatural*, which are superadded to the *natural* stimuli; which will be the most reasonable mode of proceeding, either to endeavour to relieve fatigued nature by throwing off some of the load by blood-letting and other evacuations, (as we are as yet ignorant of any direct method of throwing off the contagion itself) or to increase it by throwing in stimulating drinks and medicine, with a nourishing diet, with a view, forsooth of resisting the effects of the contagion? Certainly the former. We should be extremely cautious how we administer stimulant medicines, when the patient is already struggling under an excess of stimuli; for we do no better than heaping coals of fire on his head.

It is true that Physicians never will be very great gainers either in reputation or pocket, by stifling diseases in the bud; although the patient is saved much unnecessary pain and expence by the means. Mankind are not well enough

informed, to know what would have been the conſequence if precautions had not been uſed by the Phyſician; and as they think he had done but little, little ought his recompence to be. But if another Phyſician of leſs abilities ſhould have been called in who had not diſcernment enough to foreſee the event, and being ignorant of the neceſſity of uſing proper precautions by way of preventing the formation of the diſeaſe, ſhould neglect them entirely, and ſuffer his patient to come to the very threſhold of death's door, and even then, perhaps, *nature* may perform the cure; I ſay he will gain more, either for his ignorance or knavery, (which ever it may happen to be) than the honeſt and judicious practitioner, who would have ſaved the patient all his unneceſſary pain, and the conſequences of a tedious ſickneſs, and ſlow recovery.

But let not theſe conſiderations ſwerve us from the path of duty. Let us impute the fault to the imperfection of human nature; and may the pleaſing reflection of having done our duty, by relieving as much as is in our power, the diſtreſſes of our fellow-mortals, ever be ſuperior to the deſire of fame, and thirſt for mammon.

THE END.